REMARKS

Status of the Claims

Claims 1-6 are pending. Claims 1-6 are rejected. Claims 1-6 are amended herein. No claims are canceled. No new matter was incorporated into any claim amendment.

Objections to the specification

1. The title of the invention is not descriptive of the invention to which the claims are directed. Applicants have amended the title to "Lid Assembly for Opening a Process Chamber Lid and Uses Therefor".

2. On page 3, line 24 "a upper" should be "an upper". Applicants have amended the specification to correct this grammatical error.

3. Figure 3 does not include a detailed description. The brief description of Figure 3 is amended to describe the Figure as showing the dimensions of the lid assembly and the upper and lower limits through which the chamber lid moves after opening, rotating up to 180°, and lowering. The dimensions and distances are shown

on the Figure in both inches and millimeters and the specification describes the lid as being rotated up to 180 degrees by the rotation actuator and being raised and lowered to upper and lower limits by the linear actuators (pg. 7, ll. 7-19; Figures 2A-2C).

Applicants' invention

With regard to Applicants' independent claim 1, the invention, as claimed, is a lid assembly for a chemical vapor deposition chamber which comprises a moveable lid which rotates around an axis formed between two parallel linear guide rollers each connected to an end of a lateral side of the lid, one or more linear lifting actuators to move the lid up and down along the linear guide rollers, and a rotation actuator connected to the lateral side of the lid to rotate the lid. Claim 1 is amended to simplify claim language and to correct grammar.

Claims 2 and 5-6 depend from or were amended to depend from claim 1 and are amended to simplify claim language and to correct antecedency and grammar, respectively. Claims 3-4 depend from claim 1 and are amended as described *infra* to overcome rejection under 35 U.S.C. 112, second paragraph. Claim 3

is amended to clarify that the lid may be lowered up to about 600 mm from the open upper limit of about 1.8 meters above the floor surface (pg. 7, ll. 7-19; Figure 2C, 3). Claim 4 is amended to clarify that the lid may be rotated up to 180 degrees around the axis recited in claim 1 (pg. 8, ll. 1-3, 19-20; Figure 2B, 3).

The U.S.C. §112, Second Paragraph, Rejections

Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicants respectfully traverse this rejection.

The Examiner states that claim 3 is indefinite because it recites that the "lid can be lowered up to 600 mm" without reciting from what surface is the 600 mm. Applicants have amended claim 3 to recite that the chamber lid can be "lowered up to about 600 mm from an open upper limit of about 1.8 m above floor surface" as described *supra*.

The Examiner states that claim 4 is indefinite because "up to 180 degrees" does not indicate to what 180 degrees refers.

Applicants have amended claim 4 to clarify that rotation is around the axis recited in claim 1 as described *supra*.

Accordingly, in view of the claim amendments and arguments presented herein, Applicants respectfully request that the rejection of claims 3-4 under 35 U.S.C. 112, second paragraph, be withdrawn.

The U.S.C. §102(b) Rejection

Claims 1 and 4-5 are rejected under 35 U.S.C. §102(b) as being anticipated by **Mahl** (U.S. 4,296,153). Applicants respectfully traverse this rejection.

Mahl reference (U.S. 4,296,153)

The Examiner states that **Mahl** teaches a lid assembly for a CVD process chamber comprising a moveable lid, a first linear guide roller, a second linear guide roller, lifting actuators, a rotation actuator, and that the lid can be rotated up to 180 degrees and the method of opening and closing as recited in claim 1 (col. 1, ll. 50-68, col. 2, ll. 64 to col. 4, ll. 61; claims).

Mahl as applied to claims 1 and 4-5

Claims 1 and 4-5 are drawn to a lid assembly to mechanically open a chamber lid. Claim 1 specifically recites a movable lid, two linear actuators which raise and lower the lid in a vertical direction along the linear guide rollers, which are attached on either end of a lateral side of the lid, and a rotation actuator which rotates the lid around the lateral axis (pg. 6, ll. 3-15, pg. 7, ll. 19 to pg. 8, ll. 6; Figure 1). As amended, claim 4 recites the lid may be rotated 180° around the axis (pg. 7, ll. 16-19, Figure 2B).

In claim 5 the lid assembly may be used to open a process chamber. The chamber is open when the linear lifting actuators lift the lid to an upper limit. The process chamber is closed when the linear lifting actuators lower the lid to a lower limit (pg. 8, ll. 8-14).

Mahl, as applied to claim 1, teaches two parallel guide rods with a bracket assembly slidably mounted thereon; the guide rods are on the same side of the bracket assembly and are not attached to the chamber lid as in the instant invention (col. 2, ll. 64-68). **Mahl** does not teach rotation actuators or linear actuators both of which are motor driven in the instant invention. The chamber door in **Mahl** is opened/closed manually. The bracket assembly has

arms pivotally mounted thereon and attached to the door (col. 2, ll. 68 to col. 3, ll. 3; Figure 1).

In comparing **Mahl** to claim 4, the chamber door in **Mahl** is attached to arms mounted on a bracket assembly that can slide up and down along guide rods. In moving from a closed position to an open position, the chamber door, which is attached to the bracket assembly via the arms, is pushed manually downward (col. 3, ll. 68 to col. 4, ll. 2). **Mahl** does not teach either a rotatable chamber door nor a rotation actuator.

As applied to claim 5, the bracket/arm assembly in **Mahl** allows an operator to grasp handles on the chamber door to pull the door. In pulling the handles, the arms pivot enough in the bracket assembly to disengage the door from the chamber (col. 3, ll. 68 to col. 4, ll. 2). Then the operator manually, via the handles, lowers the door by pushing it vertically downward so that the bracket assembly slides down the guide rods out of the way of the chamber opening (col. 4, ll. 47-66; Figure 4; claim 22). As discussed *supra*, the chamber door in **Mahl** is neither lifted nor lowered via linear lifting actuators nor is the chamber door rotated during opening/closing.

Absent these teachings, Applicants respectfully submit that **Mahl** does not anticipate Applicant's claimed invention. Accordingly, Applicants request that the rejection of claims 1 and 4-5 under 35 U.S.C. §102(b) be withdrawn.

The U.S.C. §103(a) Rejections

Claims 2-3 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over **Mahl** in combination with **Frankel** *et al.* (U.S. 6,019,848) or **Bang** *et al.* (U.S. 6,110,556). Applicants respectfully traverse this rejection.

Mahl with Frankel *et al.* or Bang *et al.* as applied to claims 2-3

The Examiner states that **Mahl** teaches all the limitations of claims 2-3 with the exception of gas springs (claim 2) and lowering the lid up to 600 mm (claim 3) and the method of cleaning (claim 6). The Examiner further states that neither **Frankel** *et al.* nor **Bang** *et al.* teach the gas springs or the 600 mm lowering distance, as claimed, however, it would have been obvious for one skilled in the art to adjust the distance that the lid is lowered to obtain optimum results. The Examiner believes that one skilled in the art would

choose gas springs to support the weight of the lid because it is a design choice.

Claims 2-3 depend directly from independent claim 1 and are allowable for the reasons stated *supra* in considering claims 1, 4-5, as well as for their respective attributes. Applicants reiterate that in view of the arguments present *supra*, **Mahl** does not teach all the elements of claim 1. Thus, including further limitations which the Examiner admits neither **Mahl**, **Frankel** *et al.* nor **Bang** *et al.* teach still does not render Applicants invention obvious.

Accordingly, Applicants respectfully request that the rejection of claims 2-3 under 35 U.S.C. §103(a) be withdrawn.

Mahl with Frankel *et al.* or Bang *et al.* as applied to claim 6

The Examiner states that **Mahl** teaches all the limitations with the exception of gas springs (claim 2), lowering the lid up to 600 mm (claim 3) and the method of cleaning (claim 6). Applicants have presented arguments for the rejection of claims 2-3 *supra*. The Examiner states that both **Frankel** *et al.* and **Bang** *et al.* teach that during a process chamber cleaning or a wet cleaning the chamber lid is physically opened in order to wipe down the chamber. The

Examiner further states it would have been obvious for one skilled in the art to use the process of cleaning taught by **Frankel** *et al.* or **Bang** *et al.* to clean the CVD chamber of **Mahl** because it is known in the art that during preventive maintenance chamber cleanings the vacuum seal is broken by opening the chamber lid to physically wipe down the chamber.

The wet cleaning method for a CVD process chamber of claim 6 depends directly on the lid assembly recited in independent claim 1 and is allowable for the reasons stated *supra* in considering dependent claims 2-3, as well as for its respective attributes. Applicants reiterate that in view of the arguments present *supra*, if **Mahl** does not teach the claimed lid assembly, then a method of cleaning a process chamber using that lid assembly is not obvious.

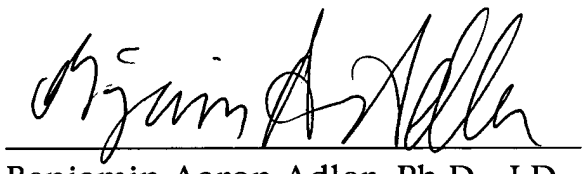
Accordingly, Applicants respectfully request that the rejection of claim 6 under 35 U.S.C. §103(a) be withdrawn.

This is intended to be a complete response to the Office Action mailed May 13, 2003. If any issues remain outstanding, the Examiner is respectfully requested to telephone the undersigned attorney of record for immediate resolution. Applicants enclose

herewith a Petition for a Two-Month Extension of Time. Please debit the $420 extension fee and any other applicable fees from Deposit Account No. 07-1185 on which the undersigned is allowed to draw.

Respectfully submitted,

Date: Oct 14, 2003



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